

Contents

- \* From the Editor
- \* Sugar Feeding
- \* Code of Ethics
- \* Report that Foulbrood
- \* A Message on Bee Diseases
- \* Recipe
- \* Stress and Beekeeping
- \* The Shimanuki Report
- \* Brief Notes
- \* Questionnaire

**No. 1**

August 1985

Apicultural Advisory Officer

Mark Schrader

Ministry of Agriculture  
and Fisheries

P.O. Box 96, OAMARU

Tel. (0297) 49-990

FROM THE EDITOR .....

WARC is the name you'll see on my overalls. It isn't my name. It's the name of where I was working in Wellington with the Apiculture Research Section. I'd got that job, not because of that piece of paper from knowledge college, but because of my dealings with bees since secondary school. The thrust of the apiculture unit's work is on kiwifruit pollination which is big business in the North Island. Last season, over 25000 hives were moved into the Bay of Plenty. The unit also tests the effect of pesticides on honey bees and has undertaken national disease diagnoses.

The day I found out my application for an apicultural advisory officer was successful, I was surrounded by kiwifruit - about a tonne of them. I was quite happy to be leaving them, but sad at leaving the excellent team of the apiculture unit. With encouraging words and a toastie-pie machine, I left for Nelson to train with the author of "Practical Beekeeping in N.Z.". This was great experience. The real wheels of working in a government department were revealed. As you know, some cogs move smoothly while others are rather rusty and a bit noisy. I still haven't come to grips with this.

Included in my training time in Nelson were hive inspections, field days, days with beekeepers, courses and of course; meetings. The weeks turned into days and before I knew it, I was away, with toastie-pie machine in tow.



When I arrived in Oamaru, the messages had piled up and I was keen to get on with the job. Unfortunately, they've changed the rules and this year I have had my budget severely cut, and am operating on less than half of normal finance. This is going to have consequences. I will not be able to be on-call, simply because of the limited mileage I've been allocated. I can not visit some of you and your operations for the same reason. I will be in the office more and so you'll have a greater chance of catching me there. (a bonus).

I am still working on financing the inspection programme and am confident that this can be maintained at the 10% level (i.e. inspection of 10% of apiaries in the district).

I've included a good article on disease and hygiene in this newsletter.

On to happier things:-

This newsletter hasn't got a name, which brings me to ask a couple of favours. The first is what do you want to call it? And the second, is what do you want in it? Before I forget, the winning entry will receive a mystery prize which means if you don't enter - you don't win. To be in to win, just fill in the questionnaire (at back), place in the enclosed envelope and pop into the postbox.

The newsletter will be published regularly (3-4 times a year) and I expect to hear your comments and criticisms (no doubt). Remember, it'll be as good as you allow it and as I can make it.

Lastly, my hearty thanks to the newsletter-producing AAO's who may find parts of their magazines in this one.

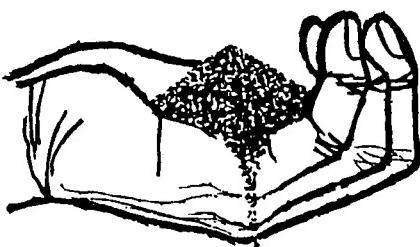
"It's not a bad photo, but it's not a good one either".

For those of you yet to meet me (and even if you have), that is me.



\*\*\*\*\*

#### SUGAR FEEDING



Sugar feeding is as controversial amongst beekeepers as flouride in water was amongst Timaru residents. It is something some of you would never do, yet others of you always do.

This year will be different. The North Otago/South Canterbury drought has meant hives went into winter with minimal stores and will need feeding, especially if an early spring buildup doesn't eventuate. For those new and not so new, here's some interesting info.

### Sugar Types

A-1 - the normal refined white sugar. Available through most wholesale and retail outlets.

Industrial grade - a semi-refined sugar bagged straight from the boat and available at concession rates through local NBA branches and the Honey Producers Co-op. (Has been known to contain mouse do-dos. Not for human consumption!)

Fine liquid sugar (FLS) - the thick liquid syrup just prior to evaporation into A-1. FLS is 65% dry sugar equivalent and is available from Chelsea Sugar Refinery in tanker loads of 12t (liquid). Joint purchase loads available by railcar, but must be decanted into beekeeper's tanks within 48 hours. Single, full tanker orders delivered by tanker truck. The cost of railing to the South Island stifles this option.

### What's the cost?

Even with a world glut, the New Zealand sugar price has managed a 6.5% increase - good old N.Z.!

The new prices:-

A-1 - \$791.43/tonne  
\$27.70/35 kg bag  
Freight paid to nearest railhead.

Industrial Grade - \$685.72/tonne  
\$24.00/35 kg bag  
or \$23.34/bag from NBA (5 pallets of 30 bags each per order. See your local NBA Secretary about group orders).

FLS - \$5890/tanker  
\$727.16/dry tonne equivalent plus a transport charge.

### Feeding dry sugar or syrup?

Ivor Forster worked on this subject and published his results in a 1976 "N.Z. Beekeeper". To save you the rummage, here's a summary.

More feed was stored by hives fed syrup than those fed dry white sugar. The difference was not as great when the bees were fed dry raw sugar (or industrial grade). This is partially explained by the extra foraging flights bees must fly to collect water for inverting and storing the sugar. A very good reason for having a water supply handy to your apiary sites.

Bees are reluctant to take dry sugar when there's no honey in the hive. This means if a hive is out of feed either give it syrup or honey from a clean (disease-free) neighbour. A beekeeper up north fronted up to a yard one day, discovered the hives were starving and tipped a couple of kilos of A1 down the back of each. Unfortunately, the starvation problem wasn't solved and the bees died. Problem - no honey in the hives.

Thick or Thin?

If you want to pay for the privilege of carting water up and down the district, then a thin syrup is your answer.

If you want more of your sugar stored and less work for the bees, then a thick syrup is needed.

# SUGAR

An English scientist, Ribbands, found the thick syrup gave 30% more stores than the same weight of sugar fed in a thin syrup.

For example:-

1 kg sugar and 1 litre of water gives 1 kg of stored product ("honey")

but 1 kg sugar and  $\frac{1}{2}$  litre of water gives 1.2 kg of stored product ("honey")

The reason for the difference is that the bees need to evaporate the excess water and in doing this use energy (i.e. sugar) at the rate of 0.3 kg of sugar for each litre of water evaporated.

Thick syrup is generally mixed at 2 parts sugar: 1 part water (weight/weight). At that concentration (67% sugar) the solution is fully saturated at 17°C but at lower temperatures is likely to begin to granulate out. A better concentration is probably 9:5 (64% sugar). The temperature of this solution can be lowered to 0°C without granulation.

For example:-

2:1

2 kg sugar + 1 kg (litre) water  $\xrightarrow{\text{mix thoroughly}}$  2.2 litres of syrup

9:5

9 kg sugar + 5 litres water  $\xrightarrow{\text{mix thoroughly}}$  10.8 litres of syrup

$$E = mc^2$$

$$\frac{2}{1}$$



9 to 5



- or if you're making up syrup by the bag, use the following ratio.  
 (The bracketed figures make 200 litres of syrup).

2:1

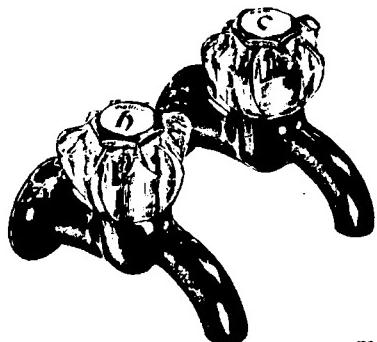
35 kg sugar + 17½ litres H<sub>2</sub>O → 38.5 l of syrup  
 or (182 kg sugar) (91 litres) (200 litres)

9:5

35 kg sugar + 19½ litres H<sub>2</sub>O → 42.0 l of syrup  
 or (167 kg) (93 litres) (200 litres)

Hot Water vs Cold

Obviously hot water speeds the mixing process considerably at high concentrations, but cold water can be used.



Although cold water does take a lot longer, it will save you the expensive water heating bill. In either case, let the mixture sit overnight and then stir the sediment off the bottom with a large wooden paddle.

There are as many mixing methods as there are beekeepers, but a simple method is to use a circulating pump with the outlet hose feeding back into the tank. If you use a motorised pump for feeding out this does the job very well.

How long will a feed last?

Well, this depends on a lot of things including weather, available sources, time of year, etc. However, 5 litres of 9:5 syrup will result in about 5 kg of stores or just over 2 frames of honey.

Can industrial grade be fed as syrup?

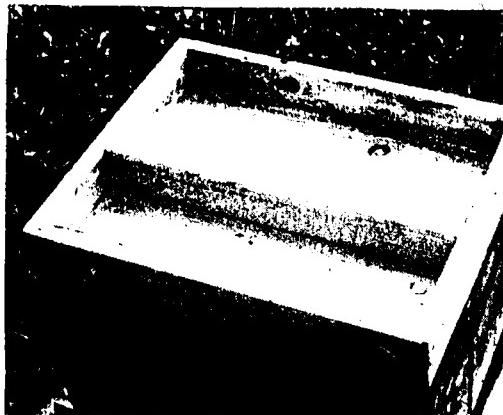
The old Fiji Raw was known to cause some problems for bees if fed as syrup. The problem was probably the high amount of unrefined material in the sugar which affected the bees physically. Cage tests done by Wallaceville on industrial grade also showed bee mortality but two year's experience in Southland has shown good results. The reason may be that since bees can defecate out the residue it doesn't pose the same problem as it would when fed to caged bees. Inclement weather wouldn't seem to be an issue either, since bees don't have to fly far from the hive to defecate.

One problem to watch out for is tainting of stores. If the very brown syrup (it smells like beer!) is fed within 3-4 weeks of the honey flow it can show up in your extraction combs. This wouldn't be such a problem with bush honeys but definitely could affect clover blends, especially in comb honey.

6.

How to feed?

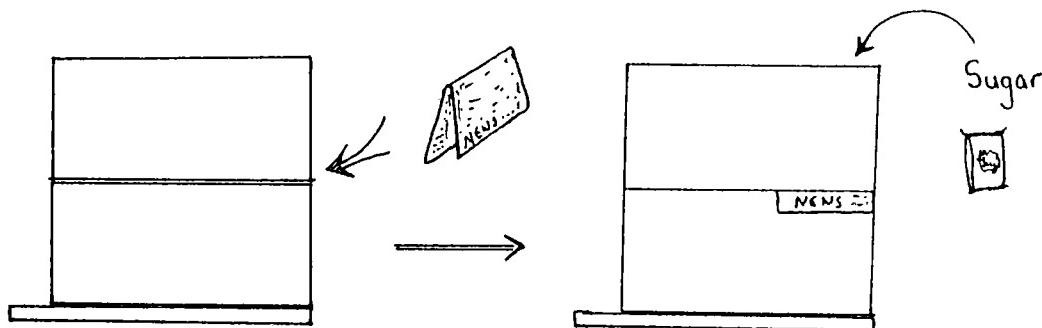
The topfeeder is the best method for getting a quantity of syrup into your hives. This is important if you're not going to be back for over a month. Frame feeders are good because the syrup is right down with the brood but unless two are used together, they're limited because of the volume of syrup which can be given per feed.



Feeding dry sugar

If you're feeding the industrial sugar dry, you may like this method.

Fold a piece of newspaper across its width. From the back of the hive, split the two brood boxes, slip the newspaper between them. Next remove the roof and pour the sugar down the back. (see diagram).



\*\*\*\*\*

CODE OF ETHICS

All branches in this district have made noises about the Code of Ethics. Originally drafted by the B.O.P. branch, it relies on "gentlemanly conduct" by members to ensure adoption. It seems not all beekeepers are gentlemen and will put their hives in the wrong places.

Below is a copy of the code of ethics (in case you've lost your copy of Cliff van Eaton's Southern Beekeeper). You may like to read it through, adapt it and take it with you to the next branch meeting. It is guaranteed to bring a lively debate.

1. We as beekeepers, should respect the territorial rights of existing apiaries unless the said apiary site has been left vacant for a period of two consecutive seasons or more.

2. Any grouping of ten or more hives shall be deemed an apiary for the purposes of this code.

3. The territorial right of any apiary shall be a distance in radius of 1.6 km (1 mile) in every direction from that apiary, and no new yard shall be located any closer than that.

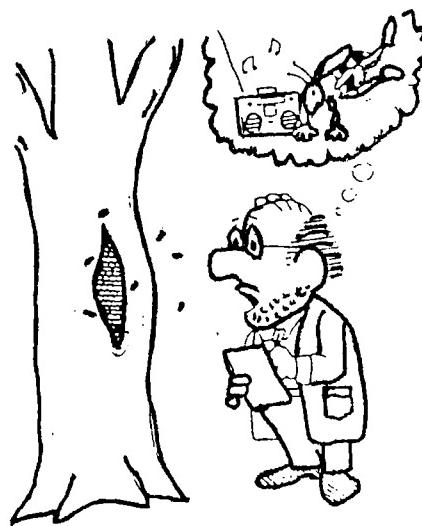
4. We should endeavour to have all our existing apiary sites plotted accurately on MAF apiary maps.

5. We will ensure that every apiary is clearly marked with our official identification number as issued by the MAF.

6. In the even of any territorial or other dispute where agreement cannot be reached, we will call on advice from a mutually acceptable mediator from within the industry.

Sounds reasonable to me, but I wonder how many beekeepers down here would agree to a distance as short as 1.6 km between sites. Most often I hear 2.4 km (1.5 miles) mentioned, and some commercial men insist on 3.2 km (that is, where the 1 mile working radii don't intersect).

In that regard it's interesting to note work done by Doull on the areas of forage available at different distances from hives. The hives are assumed to contain strong colonies each with a field force of 25 000 bees. This would be a typical full strength 3-4 storey hive.



MY GOSH.. BREAK DANCING!

Radius From Hive	Hectares Enclosed	Density of 1 bee/m <sup>2</sup>	
		No. of Bees	No. of Hives
100 m	3	30 000	1+
500 m	78	785 000	31
1 km	314	3 million	125
1.5 km	707	7 million	283
2 km	1257	12.5 million	502

Obviously, no one (except, maybe, honeydew beekeepers) would stock 283 colonies per yard. Factors including potential for robbing, access, and availability of spring sources limit apiary size. Still there's a lot of food for thought in these figures and it's obvious to me at least that apiaries of less than 20 - 25 hives aren't of commercial size.



It's worth a thought!

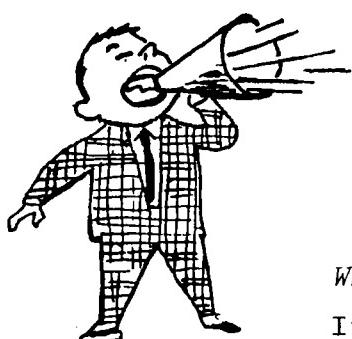
Source: Australian Beekeeper  
75(6): 146-7 1973

\*\*\*\*\*

#### REPORT THAT FOULBROOD!

A lot of you seem to have forgotten that AFB is a notifiable disease. That means you must report any BL to the Oamaru office, preferably in writing (or by phone). The Act says this must be done "forthwith", and the dictionary defines that word as "immediately, without delay".

MAF's disease control programme is not being done for fun. We're spending considerable time and money to assist your industry, and it's fair to expect your co-operation in return.



Several times recently our disease control efforts have been hampered by unreported disease. To try and prevent this happening, I've included with this issue some disease reporting forms. Please use them to report any cases of AFB.

*Why this new requirement?*

It's not new, you've always been required to give prompt notice of AFB. This new system just makes it easier for you.

*If we use these forms, what's the point of the annual inspection statement?*

The annual inspection statement enables you to provide more details of apiary sites, update hive numbers, and to list all the disease found.

*But MAF inspectors never come in my area, do I need to use these new forms?*

Yes. You'd be surprised where teams turn up.

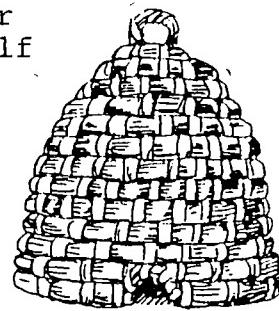
### AN IMPORTANT MESSAGE ON BEE DISEASES

I have reprinted below an excellent article on hygiene in the apiary which was written by Dr Elbert Jaycox of New Mexico. Read and inwardly digest, because we all need to have a healthy attitude to what should be a minor problem of beekeeping.

#### Overreactions to Diseases of Bees

An old problem that keeps recurring in beekeeping is the exaggerated concern for the danger of spreading bee diseases, particularly American foulbrood (AFB), our most serious brood disease. The problem shows itself in two ways:-

- 1) Attacks on bee inspectors, who are accused of not being careful enough in handling diseased colonies, and
- 2) Suggestions to beekeepers that they must sterilise themselves and the environment around them after any contact with an AFB-infected colony of bees.



Let's consider some of the unrealistic proposals we hear from people who create the problem, and then look at a few reasons why a careful, but moderate, approach to handling bee diseases is adequate to keep from spreading them.

Not long ago I read an article in which the author listed all the things you must do after having any contact with a colony infected with American foulbrood. There were so many precautions I don't remember them all, but I was impressed by the recommendation that you give the bellows of your smoker several coats of varnish. Also, if you leaned a comb, any comb, against your trouser leg, you must treat your clothes with a strong bleach such as Clorox.

Complaints against inspectors are based on similar thinking. Some beekeepers believe that the inspector should change clothing take a lye or alcohol bath, and perform other rituals after encountering a colony with AFB while inspecting. Anything less is sure to spread disease, according to those experts.

If American foulbrood were as infectious and contagious as some people would have you believe, it would take our bees as the plague took people in the old days in Europe. Fortunately, there are natural constraints on the spread of AFB and, without human interference, the disease does not spread easily in a population of honey bee colonies. Perhaps the greatest constraint is the need for disease spores to reach the food of young, susceptible larvae, not just the hive or just any bee in the hive, to cause infection. Good housecleaning by infected colonies, and other mechanisms of resistance in individual adult and larval bees, further reduce the spread of AFB.

Scientists doing research with bee diseases have found that colonies do not become readily infected with American foulbrood, even when they have been given sugar syrup containing large numbers of disease spores. They also have reported that routine examination of diseased and healthy colonies in the same apiary did not spread the infection.

## PROTECTIVE CLOTHING



Disease is spread most commonly by lack of inspection by individual beekeepers and their failure to recognise the disease or its presence. These errors and omissions lead beekeepers to transfer combs containing disease, to divide diseased colonies, and to extract honey from diseased colonies. These are the primary means of spreading infection, not the smoker, clothing, gloves, etc., of the beekeeper or bee inspector.

\*\*\*\*\*

## RECIPE

Unfortunately, I don't have Steve Lyttle's chocolate cake recipe (yet), but I think the "Georgian Beekeepers Tea" from Steve Ogden replaces it rather favourably.



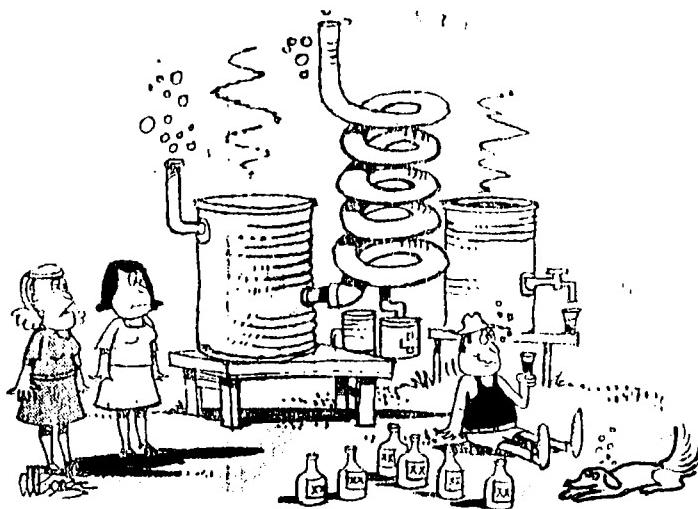
BEAR IN THE KITCHEN

1 pint (600 ml) of strong tea  
100 g Honey  
1 tspn \*vanilla sugar (optional)  
7 oz Vodka (not optional)

Heat the tea and honey in a saucepan until honey is dissolved. Add vanilla sugar if required. Add Vodka and reheat but DO NOT BOIL.

\*Vanilla sugar is prepared by storing a vanilla pod with the sugar.

(Steve Ogden is a researcher at Otago University and is investigating high-country pollination).



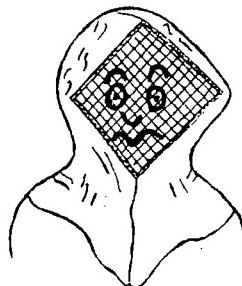
"HE'S MAKING A NEW KIND OF TEA . . . . . - OR SO HE SAYS!"

## STRESS AND THE BEEKEEPER

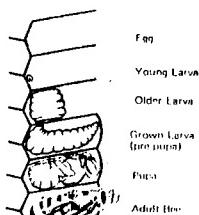
The North Otago and South Canterbury drought has left a number of beekeepers in a financially dicey situation. It is here that stress levels soar, and life becomes not difficult, but seemingly impossible.

Stress may cause opposite effects in different people. For instance, one may just "bite the bullet" and go all the harder, whereas another may give up. This can make stress very difficult to recognise.

One thing is vital, you must talk to people about the problem. An honest conversation about the problem with friends and family (especially your wife/husband) may not solve it, but will release some of the load. Keeping the problem to yourself is not the answer.



\*\*\*\*\*



## SHIMANUKI REPORTS

N.Z. Beekeepers rank among the world's best. You may have heard of Beltsville, Maryland. It is the birthplace of the infamous Beltsville bee diet, but it also houses the U.S. Department of Agriculture's principal bee disease lab. Dr Shimanuki, head of the lab, visited New Zealand last year as a half business, half honeymoon trip.

Very soon after getting back Shim got embroiled in the acarine mite discovery in Texas. He has however, made time to issue three reports on New Zealand's beekeeping industry. It's always valuable to have an "outside opinion" of things here, especially from someone as knowledgeable as Dr Shimanuki.

Highlights of his reports include:-

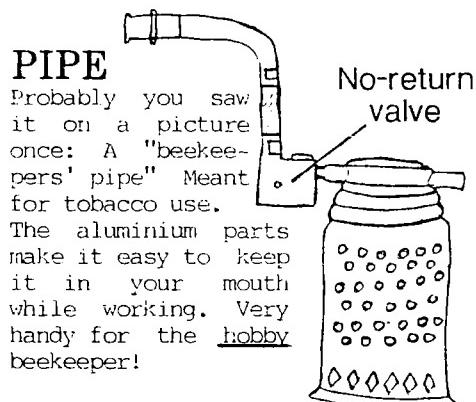
- \* strong praise for New Zealand beekeepers and the effectiveness of MAF's advisory system.
- \* support for the idea of having beekeepers responsible for disease inspection control and reporting, but also a warning not to let MAF check inspection levels drop. He recommended that New Zealand should not introduce drug feeding for AFB control.

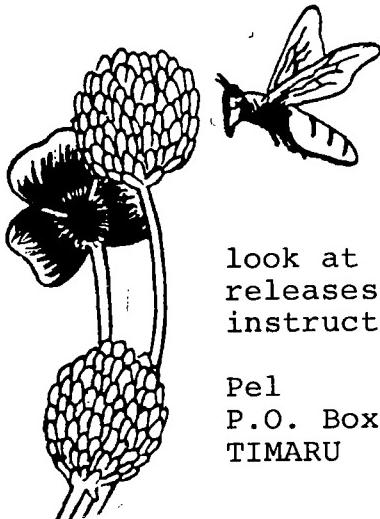
- \* His opinion about chalkbrood is that it will have little economic impact overall, though it could appear to be prevalent in some areas or some seasons. Breeding resistance into our bee stock is important.
- \* Sacbrood and paralysis are common. Again, resistance to these diseases can be bred for.
- \* Halfmoon disorder (HMD) is still a puzzle. Shimanuki's current thinking is that it could be bacterial in origin though it is not a highly contagious condition. Laboratory tests will continue in the US.
- \* A seriously underrated problem is nosema, which may be the most economically damaging bee disease in New Zealand. Beekeepers must convince themselves of this disease's seriousness and the value of feeding fumagillin.
- \* A "tremendous growth potential" for queen exports from New Zealand as a result of major disease developments in North America. However, the market won't "break" overnight, but instead will build gradually as reputation and reliability are established. While he was highly impressed with both our stocks' queen fecundity and progeny gentleness, he feels that further queen selection is essential, particularly in the areas of wintering, rapid spring buildup and autumn shutdown. Beekeepers should give more feedback to queen producers.
- \* A bee pathologist should be appointed to undertake bee disease research. (Following this report and negotiations between MAF, DSIR and the NBA executive, a pathologist has been appointed to Mt Albert Research Centre in Auckland).
- \* There is also need for a bee behaviour scientist to work on pollination, and a general apiculturalist to study beekeeping management problems.

\*\*\*\*\*

Did you hear about the wooden car with wooden wheels?

It wooden go!!





#### BRIEF NOTES

Keep that stock out - Pel produce electric fence systems which some of you may like to look at for your seasonal apiaries. A letter to them releases the usual advertising screed but also a useful instruction booklet. Write to:-

Pel  
P.O. Box 600  
TIMARU

or  
Pel  
P.O. Box 161  
DUNEDIN

Africanised Bee in California - As you've probably heard, this beastie has now arrived in California, 160 km north of Los Angeles. The public has been asked to help stop their spread, presumably by reporting feral colonies. Africanised bees can be transported on ships. Each year a percentage of shipping destined for New Zealand passes through the Panama Canal and if just one picked up a swarm, you could guess the rest.

Tree Lucerne - Next time you're having a drink with your farmer; drop in how good tree lucerne is as a stock food standby in drought affected areas. The points to mention are fast growth, provision of shelter, nitrogen fixation, keeps the stock going through times of feed shortage and of course, the rapid buildup of stock numbers during spring - bees!

Free Labour - I have two overseas beekeepers (Poms) willing to offer their services for a limited period in spring. One will even pay for the privilege. If you'd like their names, contact AAO, Oamaru.

Nodders - Loopholes exist in the Noxious Weeds Act which apparently remove the teeth from the bite of local authorities who'd like to prosecute offenders. The problem; eradication programmes are voluntary. Here's hoping for a bumper honey crop - gums and all.

"Caution - Honey may cause serious illness in infants under one year old".

This could be a label appearing in the U.S.A. if Californian officials have their way. The reason is a survey which traced 21 cases of infant botulism to a sweet source - honey. The real solution is to make sure infants under one year old don't consume honey.

Had a power failure lately? - if it's going to be a long one, turn off your major appliances, make sense? No! Well, the reason is, when the power is restored, a voltage drop caused by the appliances drawing a large initial current can blow ya motors (e.g. fridge, freezer) or overload your switchboard.

GST - A local beekeeper has beaten Roger to the gun and is working on implementing GST by October. He's aiming at charging a 15% GST which he'd have on hold. This would give him a nice kitty to draw from when the real GST begins next year. Illegal, but quick-thinking.

USA Honey Mountain - Will this follow the USA's butter deal  
- buy one lb, get one free?

Queenstown: a night or two for two  
- someone's got to win this competition  
offered by "Taupo Beehive Components Ltd".  
The entry price is one thousand frames at a cost of \$580.  
Their address, Box 1146, Taupo.

# HONEY

Apimondia 85 - This is in October and will be held in Japan.  
An unnamed beekeeper who happened to buy the right truck at the  
right time would vouch that the experience of Japan is well  
worth it, but don't forget the green tiki's (a pocketful).

A spare shed - The Railways have informed me they have old wagons  
(VB, VR, US) up for sale. Price \$400 - 800 depending on type;  
railed to nearest railhead.

Contact, District Mechanical Engineer, NZR, Box 337,  
CHRISTCHURCH

Gorse Survey - These should be well away. If you don't reply you  
can't complain when the gorse starts to disappear. If you didn't  
receive a survey form, write to Dr Ron Sandrey, Lincoln College,  
Christchurch.



HONEY BEAR

High Density Polystyrene Nucs - These "mini-chilly bins" seems to be very successful in the mating yard. They hold four miniature frames, about 1½ cups of bees and a section of honey.

Further details; The Bee Farm  
Kereru  
RD 1  
HASTINGS

Price \$6 or \$12 complete

Wasps - Dr Barry Donovan is working on a parasite to combat wasps and should have some details in the next N.Z. Beekeeper.

Smoker - carry this in an old stainless steel toilet cistern fastened to your truck and you'll save that deck. Pull the chain and wait for the smoke! Thanks Lyn.

Watch those phone bills - The P.O. computer may be becoming a better revenue spinner than the recent postage increase. Sometimes it charges subscribers as soon as a toll number is dialled, or even if you let it ring for a while. If you think you've been an involuntary user, I suggest you contact the P.O. In future, a notebook by the phone to record all toll-calls could be the answer.

Dr Dennis Anderson - Bee Pathologist - He's now here, and he's not mucking about. Already the nuts and bolts of a three year national bee survey is underway. This is to look at what diseases we have got, what we haven't got and maybe what we might got ... oops, get. He will be reporting via the N.Z. Beekeeper once the results start coming in.

Drought Relief Loans - (12.5% interest) Those of you in the drought zone can still apply for loans from the Rural Bank for drought assistance (e.g. sugar for spring feeding). To date, I'm not impressed by the procedure and am investigating. Further details are available from the Rural Bank or myself.

Queen Breeders Association - The inaugural meeting of the New Zealand Queen Breeders Association happened at conference. This should give a better service on both domestic and export markets. If you would like more details write to:-

Terry Gavin  
Whiteline Queens  
Box 1582  
WHANGAREI

Buy, Sell and Swap - If you would like to buy, sell or swap an item then drop me a note and I'll make some space for you.

\* For Sale

1400 litre S/S dairy tank, double skinned with single phase reduction gearbox. \$700 ono

B.W. Jones, Centre Road, Outram

Tel: 8174, Mosgiel

Beekeeper Vacancy - A top beekeeper is looking for full time help now.

Details from AAO, Oamaru

\*\*\*\*\*

The Questionnaire - your chance to "speak"

Most of you have now received three newsletters (two of Cliff van Eaton's and this one). Although this isn't much to go on, I would like to hear your ideas on whether you've found them worthwhile.

To help me do this, I've included a questionnaire. Please would you complete it and send it back in the envelope provided. Your speedy reply would be appreciated.

Thank you.



Mark Schrader  
APICULTURAL ADVISORY OFFICER